

Appl. No. 10/006,578
Amtd. Dated 12/16/2003
Reply to Office action of 06/20/2003

REMARKS/ARGUMENTS

Reconsideration of the above-referenced application in view of the above amendment, and of the following remarks, is respectfully requested.

Claims 1, 4-9 and 11-16 are pending in this case. Claims 1 and 9 are amended herein and claims 3 and 10 are cancelled herein.

The Examiner rejected claims 1, 3, 9-11 under 35 U.S.C. § 102(e) as being anticipated by Sandhu et al. (U.S. Patent 6,291,340).

Applicant respectfully submits that claim 1 is unanticipated by Sandhu et al as there is no disclosure or suggestion in Sandhu of annealing the conductive liner and after annealing the conductive liner, treating the conductive liner with hydrogen. In contrast, Sandhu teaches a single step of annealing in an ambient gas such as nitrogen, argon, ammonia, or hydrogen either after the deposition of the TiN layer or after the deposition of the Ti layer. Sandhu does not teach treating the conductive liner with hydrogen after annealing the conductive liner. Accordingly, Applicant respectfully submits that claim 1 and the claims dependent thereon are unanticipated by Sandhu.

Applicant respectfully submits that claim 9 is unanticipated by Sandhu et al as there is no disclosure or suggestion in Sandhu of annealing the titanium and treating the titanium with hydrogen prior to the annealing step. In contrast, Sandhu teaches a single step of annealing in an ambient gas such as nitrogen, argon, ammonia, or hydrogen either after the deposition of the TiN layer or after the deposition of the Ti layer. Sandhu does not teach treating the Ti with hydrogen prior to annealing the Ti. Accordingly, Applicant respectfully submits that claim 9 and the claims dependent thereon are unanticipated by Sandhu.

Appl. No. 10/006,578
Amtd. Dated 12/16/2003
Reply to Office action of 06/20/2003

The Examiner rejected claims 4-8, 12-16 under 35 U.S.C. § 103(a) as being unpatentable over Sandhu et al. (U.S. Patent 6,291,340) in view of Sharan et al. (U.S. Patent 6,335,282).

Applicant respectfully submits that claims 4-8 are patentable over the references for the same reasons discussed above relative to claim 1, from which they depend. Sharan et al is added to teach a plasma treatment in hydrogen mixed with a carrier gas comprises ammonia. There is no disclosure or suggestion in the references of annealing the conductive liner and after annealing the conductive liner, treating the conductive liner with hydrogen.

Applicant respectfully submits that claims 12-16 are patentable over the references for the same reasons discussed above relative to claim 9, from which they depend. Sharan et al is added to teach a plasma treatment in hydrogen mixed with a carrier gas comprises ammonia. There is no disclosure or suggestion in the references of annealing the Ti and prior to annealing the Ti, treating the Ti with hydrogen.

In light of the above, Applicant respectfully requests withdrawal of the Examiner's rejections and allowance of claims 1, 4-9, and 11-16. If the Examiner has any questions or other correspondence regarding this application, Applicant requests that the Examiner contact Applicant's attorney at the below listed telephone number and address.

Respectfully submitted,

Texas Instruments Incorporated
PO Box 655474, M/S 3999
Dallas, TX 75265
Phone: (214) 532-9348
Fax: (972) 917-4418


Jacqueline J. Garner
Reg. No. 36,144